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In order to be able to determine the frequency of the measuring signal together with the amplitude and the phase angle, use is made of a model of the measuring signal in accordance with the relationship  $y = A \cdot \sin(2\pi f t + \varphi)$ , and by using this model and the sampled values ( $y_m$ ), the determination of the frequency of the measuring signal ( $u_m$ ) as well is carried out by means of a recursive nonlinear least-squares estimation method. By expanding the signal model, measuring signals with a DC component and with frequencies that change over time can also be investigated.

FIG 1